TREATMENT OUTSIDE THE UNITED STATES

VERORAB® is a rabies vaccine preparation currently being considered for licensure in the United States. This vaccine is reported to produce a very good antibody response even when given subcutaneously. It is now being used in Mexico, often without rabies immune globulin.

If postexposure treatment is begun outside the United States with locally produced biologicals, it may be desirable to provide additional treatment when the patient reaches the United States. For specific advice in such cases, contact the Bureau of Communicable Disease Control, Texas Department of Health (512-458-7455).

PREEXPOSURE IMMUNIZATION

Preexposure prophylaxis is given for several reasons. First, it may provide protection to persons with inapparent exposures to rabies. Second, it may protect persons whose postexposure therapy might be expected to be delayed. Finally, although it does not eliminate the need for additional therapy after a rabies exposure, it simplifies therapy by eliminating the need for rabies immune globulin and decreasing the number of doses of rabies vaccine needed. This is of particular importance for persons at high risk of being exposed in countries where the rabies biologicals may be difficult to obtain. The guidelines for offering preexposure immunization are found in **Table 2**.

Table 2. Rabies preexposure prophylaxis guide, United States

Risk category	Nature of risk	Typical populations	Preexposure recommendations
Continuous	Virus present continuously, often in high concentrations. Aerosol, mucous membrane, bite, or nonbite exposure. Specific exposures may go unrecognized.	Rabies research lab worker*, rabies biologics production workers.	Primary course. Serologic testing every 6 months; booster vaccination when antibody level falls below acceptable level.**
Frequent	Exposure usually episodic, with source recognized, but exposure may also be unrecognized. Aerosol, mucous membrane, bite, or nonbite exposure.	Rabies diagnostic lab workers*, spelunkers, veterinarians and staff, and animal control and wildlife workers in rabies enzootic areas. Travelers visiting foreign areas of enzootic rabies for more than 30 days.	Primary course. Serologic testing or booster vaccination every 2 years.**
Infrequent (greater than population at large)	Exposure nearly always episodic with source recognized. Mucous membrane, bite, or nonbite exposure.	Veterinarians and animal-control and wildlife workers in areas of low rabies enzooticity. Veterinary students.	Primary course; no serologic testing or booster vaccination.
Rare (population at large)	Exposures always episodic. Mucous membrane, or bite with source unrecognized.	U.S. population at large, including persons in rabies epizootic areas.	No vaccination necessary.

*Judgment of relative risk and extra monitoring of vaccination status of laboratory workers is the responsibility of the laboratory supervisor.
**Minimum acceptable antibody level is complete virus neutralization at a 1:5 serum dilution by RFFIT. Booster dose should be administered if the titer falls below this level.

Preexposure immunization does not eliminate the need for prompt postexposure prophylaxis following an exposure; it only reduces extent of the postexposure regimen.

HDCV

Three 1.0 ml injections of HDCV should be given intramuscularly (IM) in the deltoid area, one on each of days 0, 7, and 21 or 28 (**Table 3**). Because the antibody response following the recommended vaccination regimen with HDCV has been uniformly satisfactory, routine postvaccination serology is not necessary.

Intradermal (ID) Use of HDCV

HDCV produced for intradermal administration (IMOVAX® Rabies ID) has been used for preexposure immunization in a regimen of three 0.1 ml doses given intradermally (ID) in the lateral aspect of the upper arm over the deltoid area, one dose each on days 0, 7, and 21 or 28 (**Table 3**). Persons vaccinated by the ID route show antibody production that is lower and may be of shorter duration than with comparable IM immunization.

Chloroquine phosphate (administered for malaria chemoprophylaxis) may interfere with the antibody response to HDCV in persons traveling to developing countries. The IM dose/route of preexposure prophylaxis provides a sufficient margin of safety in this setting. HDCV should not be administered by the ID route while a person is receiving chloroquine for malaria chemoprophylaxis. In persons receiving preexposure prophylaxis in preparation for travel to a rabies endemic area, the ID dose/route should be initiated early enough to allow the three-dose series to be completed 30 days or more before departure. If this is not possible, the IM dose/route should be used. Although interference with the immune response to rabies vaccine by other antimalarials structurally related to chloroquine (e.g., mefloquine) has not been evaluated, it seems prudent to follow similar precautions for persons receiving these drugs.

RVA or PCEC

The preexposure dose/route schedule is the same as that recommended for the IM use of HDCV (**Table 3**).

Table 3. Rabies preexposure prophylaxis schedule, United States

Type of vaccination	Route	Regimen
Primary	IM	HDCV, RVA or PCEC, 1.0 ml (deltoid area), one each on days 0, 7, and 21 or 28
	ID	HDCV, 0.1 ml, one each on days 0, 7, and 21 or 28
Booster*	IM	HDCV, RVA or PCEC, 1.0 ml (deltoid area), day 0 only
	ID	HDCV. 0.1 ml, day 0 oniy

*Administration of routine booster dose of vaccine depends on exposure risk category as noted in **Table 2**.

Booster Doses of Vaccine

The booster doses recommended for persons at high risk of rabies exposures are outlined in **Table 2**. RFFIT testing is available through Kansas State University at the address and phone number found on page 14.

Postexposure Therapy of Previously Immunized Persons

When an immunized person who was vaccinated by the recommended regimen with HDCV, RVA or PCEC, or who has previously demonstrated rabies antibody is exposed to rabies, that person should receive two IM doses (1.0 ml each) of HDCV, RVA, or PCEC, one immediately and one 3 days later (**Table 1**). HRIG should not be given in these cases. If the immune status of a previously vaccinated person who did not receive the recommended HDCV, RVA or PCEC regimen is not known, full primary postexposure antirabies treatment (HRIG plus five doses of HDCV, RVA or PCEC) may be necessary. In such cases, if antibody can be demonstrated in a serum sample collected before vaccine is given, treatment can be discontinued after at least two doses of HDCV, RVA or PCEC.

ACCIDENTAL HUMAN EXPOSURE TO ANIMAL RABIES VACCINE

Accidental inoculation may occur to individuals during administration of rabies vaccines to animals. Such exposure to inactivated rabies vaccine constitutes no known rabies hazard.